

REMARKS:Claims 1-3, 5-6, 10-14, 16, 20-21, 24-27, 29-32

Claims 1-3, 5-6, 10-14, 16, 20-21, 24-27, and 29-32 have been rejected under 35 USC 103(a) as being unpatentable over Miyatake in view of Chey and in further view of Meyer.

Applicant respectfully disagrees that the combination proposed by the Examiner would render the claims obvious.

The analysis of obviousness was set forth in *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966). In order to establish a *prima facie* case of obviousness, three basic criteria must be met:

First, there must be some *suggestion or motivation*, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the teachings of the references. Second, there must be a reasonable *expectation of success*. Finally, the prior art reference or combined references must teach or suggest *all* the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success *must both be found in the prior art*, and not based on applicant's disclosure (*In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991; emphasis added).

Applicant respectfully disagrees that Miyatake, Chey and Meyer would suggest or motivate one skilled in the art to combine the teachings of Miyatake, Chey and Meyer to create Applicant's method, particularly as claimed in claim 1.

Miyatake discusses detecting a floating state of a magnetic head. If the head floats too much, the user can be warned. Nowhere does Miyatake suggest any manner of reducing the floating, much less doing so by heating the head to induce protrusion. In fact, Miyatake teaches *away* from the proposed combination of art. If the spacing were controlled as in the presently claimed invention, the warning system would no longer be needed as a larger fly height could be used, and the head caused to protrude on demand. Accordingly, Miyatake does not suggest combining its teachings with that of Chey.

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Chey, while disclosing that heaters can be used in magnetic heads to induce protrusion, does not disclose or suggest selectively heating the head based on a variation in a readback signal. Nowhere is a readback signal in relation to heating mentioned.

Meyer passes a head across the disk surface to map asperities. The object of Meyer is to fly at a very constant low fly height so the disk asperities can be mapped prior to installing an actual "production head." In fact, Meyer indicates that the head is positioned substantially lower (such as 50% lower) than the nominal operation fly height. See col. 8, lines 7-10 of Meyer. Accordingly, creating protrusion is not desirable in Meyer's system as, at the low fly height, protrusion would lead to increased head-disk contacts, resulting in erroneous mappings of asperities. Thus Meyer teaches *away* from the claimed invention and so cannot be said to suggest selectively heating the head to induce protrusion.

Nor has the Examiner provided a reasonable motivation based on knowledge generally available to those skilled in the art and not provided by Applicants in the present disclosure, particularly with regard to claim 1.

"To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

The rejection indicates that it would have been obvious to modify Miyatake's method of measuring the amplitude of the signal in combination with Chey's use of the heater to induce protrusion. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art.

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Not only have we shown that the references do not suggest the combination, we also believe that the knowledge of those of skill in the art would not have led one so skilled to combine the references to make the claimed invention at the time the present invention was made. Miyatake does not teach protrusion. Chey does not teach measuring the signal amplitude to adjust the heating of the head. Neither teach or suggest selective heating to select an appropriate fly height. Rather, the rejection relies on Chey to show the latter limitation. Chey was not published at the time the present invention was made, nor has it been shown that the subject matter disclosed in Chey was well known in the art.

“It is difficult but necessary that the decisionmaker forget what he or she has been taught . . . about the claimed invention and cast the mind back to the time the invention was made (often as here many years), to occupy the mind of one skilled in the art who is presented only with the references, and who is normally guided by the then-accepted wisdom in the art.” *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).

Because Chey was not yet published, Applicants request a specific showing that one skilled in the art would have been not only aware of Chey’s teachings, but also that he or she would have been motivated to create the combination proposed by the Examiner.

A statement that modifications of the prior art to meet the claimed invention would have been “ ‘well within the ordinary skill of the art at the time the claimed invention was made’ ” because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993).

Additionally, creating protrusion in Meyer’s system would destroy the intended function of the device, as at the low fly height, the head would bump the very protrusions being mapped.

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If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

Reconsideration and allowance of claim 1 is respectfully requested.

Claims 2-11 and 31 depend from claim 1, and therefore incorporate the limitations of claim 1. Accordingly, claims 2-11 and 31 are also believed to be allowable. Allowance of claims 1-11 and 31 is respectfully requested.

Regarding claims 5-6, Applicant respectfully disagrees that the combination of references would anticipate these claims. Particularly, the references fail to disclose all of the claimed elements, as is required by the third prong of the *Graham* test. Nowhere do the references teach or suggest inducing protrusion at a particular radial position of the head relative to the disk. The only mention of radial position in the rejection is in Miyatake, col. 8, lines 10-18. However, this relates merely to identifying a cylinder and sector over which the head is flying. This in no way suggests heating the head at a particular position. The claimed feature is particularly useful in that it allows the system to induce more protrusion where needed. One example is that more protrusion may be needed to compensate for waviness in the disk, particularly prevalent near the center of the disk adjacent the clamp.

Further, as mentioned above, neither the combination of references nor the knowledge generally available to those of skill in the art would have suggested the proposed combination of art as required by the first prong of the *Graham* test.

Claim 10 has been amended to require that the extent of heating be constantly varied based on the variation in the signal amplitude. Regarding claim 10, Applicant respectfully disagrees that the combination of references would anticipate claim 10, particularly as amended. Particularly, the references fail to disclose all of the claimed elements, as is required by the third prong of the *Graham* test. Nowhere do the references teach or suggest varying an extent of the protrusion based on the variation in signal amplitude. Again, the only reference that discloses protrusion is Chey. However, Chey indicates that the heater resistance changes are kept to a minimum and the power

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dissipated in the heater is controlled (see paragraphs 0012-0013), meaning that the temperature of the heater is kept relatively constant rather than being continuously varied as required by claim 10. Further, Chey is replete with reference to a "setpoint," again implying a constant amount of heating. To argue that Chey would suggest a variable amount of heating would prohibitively defeat the purpose of Chey, which is to provide a stable heat output. Accordingly, claim 10 particularly as amended is believed to be allowable.

Claim 12, which contains the same limitations as claim 1, is also believed to be allowable over the proposed combination of references for the same reasons set forth above in the discussion of claim 1. Nonetheless, claim 12 has been amended to recite the further limitations that data is first written to the disk. The data is read and variations in amplitude of a signal obtained during reading the data is determined either by using a modulation detector, or by measuring a gain of the signal created by the head. These new features are not found in Miyatake, Chey or Meyer. Reconsideration and allowance of claim 12 is respectfully requested.

Claims 13-20 depend from claim 12, particularly as amended, and therefore incorporate the limitations of claim 12. Accordingly, claims 13-20 are also believed to be allowable. Allowance of claims 12-20 is respectfully requested.

Claim 15 has also been amended to recite that the fly height variations are mapped, and the head is selectively heated based on the mapping. (This is not the same limitation as in claim 21, which maps the surface of the disk.) As noted on p. 15, lines 4-10 of the present application:

The fly height variations are mapped in operation 504 to indicate where the slider is flying higher and lower. At a particular radius and vector where the slider is flying higher, the slider is heated (and/or the amount of heating varied) so that the read and/or write element protrudes towards the disk to about a desired average fly height. Note operation 506. The result is a generally constant fly height over the wavy disk surface. Note that at some locations, the head may be close enough to the disk that heating is not necessary.

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This feature is not found in Miyatake, Chey or Meyer. Reconsideration and allowance of claim 15 is respectfully requested.

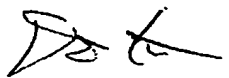
Claims 17 has been amended to require that a silicon-containing polymer in the head is heated, as described on p. 18, lines 4-12 of the present application. Silicon-containing polymers have a predictable coefficient of thermal expansion. Claim 18 further requires that the polymer used is only partially cured, as described on p. 18, lines 4-12 of the present application. Such material has a large yet measurable coefficient of thermal expansion. Reconsideration and allowance of claim 17 is respectfully requested.

Regarding claim 21, Applicant respectfully disagrees that the proposed combination of references would meet the *Graham* test. Particularly, only Chey discusses inducing protrusion. However, as mentioned above, Chey's system requires constant heat from the heater, rather than selective heating. None of the other references discuss or suggest inducing selective protrusion, much less that it be based on a mapping. Accordingly, the first and third elements of the *Graham* test are not met.

Claims 22-30 and 32 depend from claim 21, particularly as amended, and therefore incorporate the limitations of claim 21. Accordingly, claims 22-30 and 32 are also believed to be allowable. Allowance of claims 21-30 and 32 is respectfully requested.

In the event a telephone conversation would expedite the prosecution of this application, the Examiner may reach the undersigned at (408) 971-2573. For payment of any additional fees due in connection with the filing of this paper, the Commissioner is authorized to charge such fees to Deposit Account No. 50-2587 (Order No. HSJ920030155US1).

Respectfully submitted,

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